Previous page Section menu Next page

Calculating the weighted average

*** Warning - this section involves some A-Level mathematics ***

The Ratings reflect recent form by using a weighted average. The principle that is used is known as 'exponential smoothing'. What it means is that, as you go backwards through a batsman's career, the value of each innings becomes about 4% less significant. (4% is not a magic number, but is the result of trial and error to find a figure that produces sensible results.) For a bowler, the value of each bowling spell (which the Ratings team defined as conceding 30 runs) becomes about 1.5% less significant as you go back through his career.

Suppose that batsman 'Brown' has played six Test innings, as follows:

0, 20, 10, 45, 135, 90 (total 300 runs, average of 50).

Before we put these innings into the formula, the adjustments for the opposition and the 'pitch' factor have to be made, as described in the earlier sections. Let us suppose that Brown's six innings are adjusted to:

0, 21, 8, 57, 145, 113.

Notice that most of his performances have been scaled up, which indicates that they were generally made in difficult conditions - perhaps he was playing against the current Australian bowlers. Overall you will see that his record has been improving. His weighted average reflects this, and is calculated as follows:

$$\frac{\{(0 \times 0.96^5) + (21 \times 0.96^4) + (8 \times 0.96^3) + (57 \times 0.96^2) + (145 \times 0.96^1) + (113 \times 1)\}}{0.96^5 + 0.96^4 + 0.96^3 + 0.96^2 + 0.96^1 + 1}$$

$= 329.8 / 5.4$

$= 61.1$

So, because he has been performing well in difficult conditions in his more recent innings, his ordinary average of 50 is increased to a weighted average of 61.1.

As for other parts of the algorithm, the bowlers are treated in much the same way as the batsmen: each 'spell' of bowling is discounted by 1.5% to produce the weighted average. The equivalent formula used for bowling is more complicated and is not printed here.

Previous page Section menu Next page